

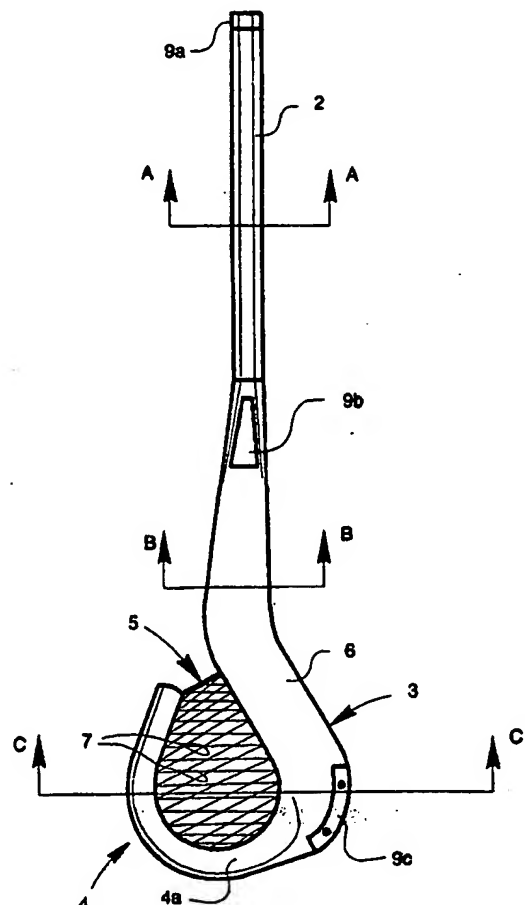
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: **A STICK FOR PLAYING A GAME**

## (57) Abstract

A stick is disclosed for use in playing a game with a ball. The stick includes an elongate handle (2), a generally flat portion (3), and a curve portion (4) which encloses a pocket (5). The flat portion (3) includes a striking or hitting surface (6) allowing the player to hit a ball, while the pocket (5) is designed to allow a player to capture and throw a ball.



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## A STICK FOR PLAYING A GAME

### 5 TECHNICAL FIELD

The present invention relates to a stick for playing a game, and in particular to a stick for playing a game which involves both catching\throwing, and hitting a ball.

### 10 BACKGROUND ART

A wide variety of sticks are known for playing games using a ball. Typically, such sticks are designed to either entrap a ball within a pocket (such as a lacrosse stick, for example), or to hit a ball (such as a field hockey stick, for  
15 example).

These sticks suffer from two primary disadvantages: they limit the freedom of the player (by restricting the player to either entrapping\throwing, or hitting, the ball); and they are unsymmetrical, so that different sticks must be  
20 constructed for left and right handed players.

It is an object of the present invention to provide a stick for playing a game using a ball, wherein the stick includes means for both hitting and entrapping the ball as desired by the player.

25 It is another object of the present invention to provide a stick for playing a game using a ball, wherein the stick is symmetrical about at least one plane of symmetry, whereby the stick can be used equally by a right or left handed player.

30 According to an aspect of the present invention, there is provided a playing stick for use in conjunction with a ball, said stick comprising an elongate handle portion; an elongate strike-zone portion extending from an end of said handle portion, said strike-zone portion having a  
35 substantially flat striking surface for hitting a ball; a curved portion extending from the distal end of said strike-

zone portion and curving back from said strike-zone portion towards said handle portion; and pocket means disposed between said strike-zone portion and said curve portion, said pocket means being adapted to permit capture of a ball therein.

5 According to another aspect of the present invention, there is provided a game to be played by two opposing teams using a ball, each team member being provided with a playing stick according to the invention having means for accurately capturing and throwing a ball, and means for  
10 accurately hitting a ball.

In a preferred embodiment, the stick has a plane of symmetry substantially parallel with the striking surface.

In a preferred embodiment, the strike-zone portion is bent in a plane substantially coplanar with said striking  
15 surface.

In a further preferred embodiment, the stick includes a plurality of weighting elements adapted to be interchangeably affixed to one or more attachment means on said stick, whereby the weight and/or balance of the stick can  
20 be selectively adjusted by a player.

The playing stick of the invention is particularly suitable for playing the game known as i-LINE (Trademark), when used in conjunction with a roller skating/blading rink having a surface comprising: a substantially flat central  
25 portion: a wall portion surrounding the central portion and forming a peripheral limit of the skating surface, the wall portion being oriented substantially normal to the central portion; an upwardly curved portion extending between the central portion and the wall portion and providing a  
30 substantially smooth transition therebetween. A preferred rink forms the subject matter of my co-pending Canadian Patent Application Serial No. 2,087,554, filed on January 19, 1993.

#### BRIEF DESCRIPTION OF DRAWINGS

35 Further features and advantages of the present invention will become apparent from the following detailed

description of a preferred embodiment, reference being made to the appended drawings in which:

Figure 1 illustrates a plan view of an embodiment of the present invention;

5 Figure 2 is an enlarged cross-sectional view of the embodiment of Figure 1, taken along the line A-A;

Figure 3 is an enlarged cross-sectional view of the embodiment of Figure 1, taken along the line B-B;

10 Figure 4 is an enlarged cross-sectional view of the embodiment of Figure 1, taken along the line C-C;

Figures 5a and 5b are cross sectional views of an embodiment of a ball used in conjunction with a stick according to an embodiment of the present invention; and

15 Figure 6 is a plan view of a second embodiment of a stick according to the present invention.

#### BEST MODE OF CARRYING OUT THE INVENTION

In each of the drawings, like elements are identified by like reference numerals.

20

Referring to Figure 1, a stick 1 according to the present invention generally comprises an elongate handle 2, an elongate strike-zone portion 3, a curved portion 4, and a pocket 5. The stick 1 can be fabricated using a variety of  
25 suitable materials, including metals (e.g. aluminum), plastics, fibre-reinforced composites, or wood. The overall length of the stick 1 preferably lays within the range of between 1.0 metres and 1.8 metres. For example, the stick can conveniently be fabricated in various lengths (e.g. 1100mm,  
30 1300mm and 1500mm) so as to suit players of different sizes. In general, any variations in the length of the stick 1 will be taken up by changing the length of the handle 2, so that strike-zone portion 3 and pocket 5 are a standard size for all players.

35

The handle 2 suitably enables a player to maintain a secure grip on the stick 1, as well as accurate control of

thereof. In that respect, the cross-sectional shape of the handle can be elliptical, or angular, as illustrated in Figure 2. The overall length of the handle 2 will typically be in the neighbourhood of 600mm. However, as mentioned above, this length will adjusted to provide sticks of different overall length. Conveniently, the handle 2 can be fabricated with one or more extension pieces (not shown), which can be fitted onto the end of the handle 2, and by which a player can selectively adjust the length of the handle 2.

As illustrated in Figure 3, the strike-zone portion 3 is comparatively wider and thinner than the handle 2, and comprises a substantially flat striking surface 6 with which a ball can be hit. By suitably adjusting the angle of the stick 1, a player can thus hit a ball and accurately control the direction of the ball as it leaves the stick 1. The strike-zone portion 3 is preferably between 50mm and 100mm in width. In addition the width of the strike-zone portion 3 can vary, so that, for example, part of the strike-zone portion 3 can be 90mm wide, while another part of the strike-zone portion 3 can be 65mm wide. A transitional portion of the stick (between the handle and the strike-zone portion) can conveniently be used to provide a smooth taper between the handle 2 and the strike-zone portion 3.

The pocket 5 is generally formed as a loose net composed of a plurality of lacings 7. The lacings 7 can be formed from a variety of suitable materials, such as leather thong, or nylon (trademark) cord or mesh or the like, so that the pocket 5 is provided with sufficient flexibility and strength to securely entrap a ball. The pocket 5 can be fastened to the stick 1 by any suitable means. The pocket 5 will preferably be between approximately 150mm and 300mm in length and have a maximum width of between approximately 100mm and 200mm.

Figure 4 illustrates a cross-section through the curve portion 4, the pocket 5 and the strike-zone portion 3. As shown in figure 4, the stick 1 is symmetrical about plane

of symmetry 8 which permits the stick 1 to be used equally by right or left handed players. In addition, a sloped surface 4a, proximal to the pocket 5, helps guide the ball into and out of the pocket, and thereby facilitates controlled capture and throwing of the ball.

The stick 1 can be provided with fixed weights 9a-c, which allow the stick to be provided with a predetermined weight, balance, moment of inertia, and the like. For example, by suitably matching the weights 9a-c with the weight of a ball to be used with the stick 1, it is possible to adjust the balance of the stick 1 such that, when a ball is held within the pocket 5, the stick 1 tends to balance with its plane of symmetry 8 arranged substantially horizontally, while when the pocket 5 is empty, the stick balances with the plane of symmetry arranged substantially vertically.

In an alternative embodiment, the stick can be provided with one of more interchangeable weights (not shown), whereby the weight and balance of the stick can be adjusted as desired by a player.

Referring to Figures 5a and 5b, the stick 1 of the invention is designed to be used in conjunction with a ball 10. The ball 10 is generally spherical in shape and comprises a comparatively thick outer shell 11 enclosing a central air-filled cavity. A duct 12 permits ingress and egress of air to and from the central cavity of the ball 10, while restricting flow. By this means, when the ball 10 strikes a solid surface 13 (see Figure 5b) air within the cavity of the ball 10 is expelled through the duct 12, thereby reducing the degree of bounce exhibited by the ball 10. The duct 12 is preferably in the range of approximately 0.5-1.5 mm in diameter.

The shell 11 is composed of a resilient rubber composition having a comparatively high hysteresis, so that deformation of the ball (during impact with a surface) results in a loss of kinetic energy of the ball, thereby further reducing the degree of bounce exhibited by the ball. The

thickness of the shell 11 is selected to provide the ball 10 with a suitable mass, so that the ball can be thrown or propelled accurately over a reasonable distance. Preferably, the thickness of the shell will be in the range of approximately 8 to 16 mm, and the weight of the ball will be in the range of approximately 85 to 200 grams. The diameter of the ball is preferably in the range of approximately 50 to 75 mm.

Figure 6 is a plan view of a second embodiment of a stick 1 according to the present invention. According to this second embodiment, the curved portion 4 extends to, and connects with the strike-zone portion 3 of the stick at 10, thereby improving the strength and rigidity of the stick.

The stick 1 of the invention is particularly suited for the playing of the game i-LINE, in which two opposing teams (each team comprising a goal-minder and four skaters wearing rollerblades) using a ball, attempt to score points against each other by causing the ball to enter the other team's goal net. Each team member is provided with a playing stick 1 whereby the ball can be passed from one player to another (and shot at a goal net) by either hitting or throwing the ball.

The game of i-LINE is preferably played using a roller skating/blading rink as described and claimed in my copending Canadian Patent Application No. 2,087,554, having a surface comprising: a substantially flat central portion; a substantially vertical wall portion surrounding the central portion and forming a peripheral limit of the skating surface; and an upwardly curved portion extending between the central portion and the wall portion and providing a substantially smooth transition therebetween.

The roller skating/blading surface is broken into three play zones, namely a central neutral zone, an offensive zone, and a defensive zone.

Within the neutral zone, a player cannot pass the ball to players in either of the other two zones. A player



entering the neutral zone must do so with total possession or control of the ball. Once in the Neutral zone, the ball carrier can either pass the ball to another player (who must then carry the ball out of the neutral zone), or else retain possession of the ball and proceed out of the neutral zone.

The offensive and defensive zones must be entered by the ball carrier first.

Surrounding each goal net is a "circle control" zone. i-LINE skaters of one team are not permitted to enter the circle control zone of the opposing team, although reaching in for a loose ball is allowed. Conversely, the net minder is not allowed to leave the circle control zone at any time during play.

The net minder's role as a key defensive player is enhanced by the wearing of shoes rather than rollerblades, thereby allowing the net minder to be very agile. The defensive capabilities of the net minder are further enhanced by the fact that the strike-zone portion 3 and the pocket 5 of the stick used by the net minder have a somewhat larger surface area than the sticks used by skaters.

As the game of i-LINE is a non-contact sport, defending players are permitted to alter an offending player's line of travel only while the defending player can maintain a strong defensive position. Once the defensive player has fallen to a disadvantage, any body contact results in an infraction or penalty. However light contact can be made while players are flowing with no disruption of balance (i.e. brushing or rubbing contact).

Similarly, stick-to-stick contact is a precise skill, and should only be executed from a defensive angle, any offensive attack results in an infraction or penalty.

In order to maintain continuous play, time limits are placed on possession and control of the ball. For example, when the net minder gains control of the ball ( i.e. "circle control") he or she must release it within 5 seconds of possession, or, in the case of a goal having been scored,

within 10 seconds. Similarly, possession of the ball by a team is limited to 15 seconds, starting when the net minder releases the ball. Possession time ends if there is an attempted shot on goal, or total loss of control of the ball by a team, in which case the possession time is restarted once a player (of either team) gains possession of the ball. If the allotted possession time is exceeded, circle control of the ball is given to the opposing team.

A time-out may be called only during circle control, and is signalled by the net minder raising his stick over his head. Each team may use a maximum of 21 time-outs during the course of the game, with each time-out lasting approximately 24 seconds. Circle control is regained by the team that calls the time-out, except during the last three minutes of the game, where the opposing team gains control.

Each of the players is equipped with a helmet having a built-in communication unit. The communication units, which can operate by infra-red signals, radio frequency, or other known means, permit two-way communication between players, and coaches, and facilitate setting up plays, changing players, and as a safety feature against violence and body contact. In addition, receiver units can be provided to spectators, so as to encourage spectator involvement in the game.

## **INDUSTRIAL APPLICABILITY**

The present invention provides a stick and a ball for use by players of a team sport which involves catching, throwing, and hitting a ball. The stick of the invention provides a pocket for catching and carrying a ball, a striking surface for hitting a ball, and a sloped surface proximal the pocket to facilitate capture and throwing of the ball.

**CLAIMS:**

1. A playing stick for use in conjunction with a ball, said stick characterized by:

an elongate handle portion;

an elongate strike-zone portion extending from an end of said handle portion, said strike-zone portion having a substantially flat striking surface for hitting a ball;

a curve portion extending from a free end of said strike-zone portion, said curve portion curving from said strike-zone portion towards said handle portion; and

pocket means disposed between said strike-zone portion and said curve portion, said pocket means being adapted to permit entrapment of a ball therein.

2. A stick as claimed in claim 1, characterized by that said stick has a plane of symmetry substantially parallel with said striking surface.

3. A stick as claimed in claim 1, characterized by that said strike-zone portion is bent in a plane substantially coplanar with said striking surface.

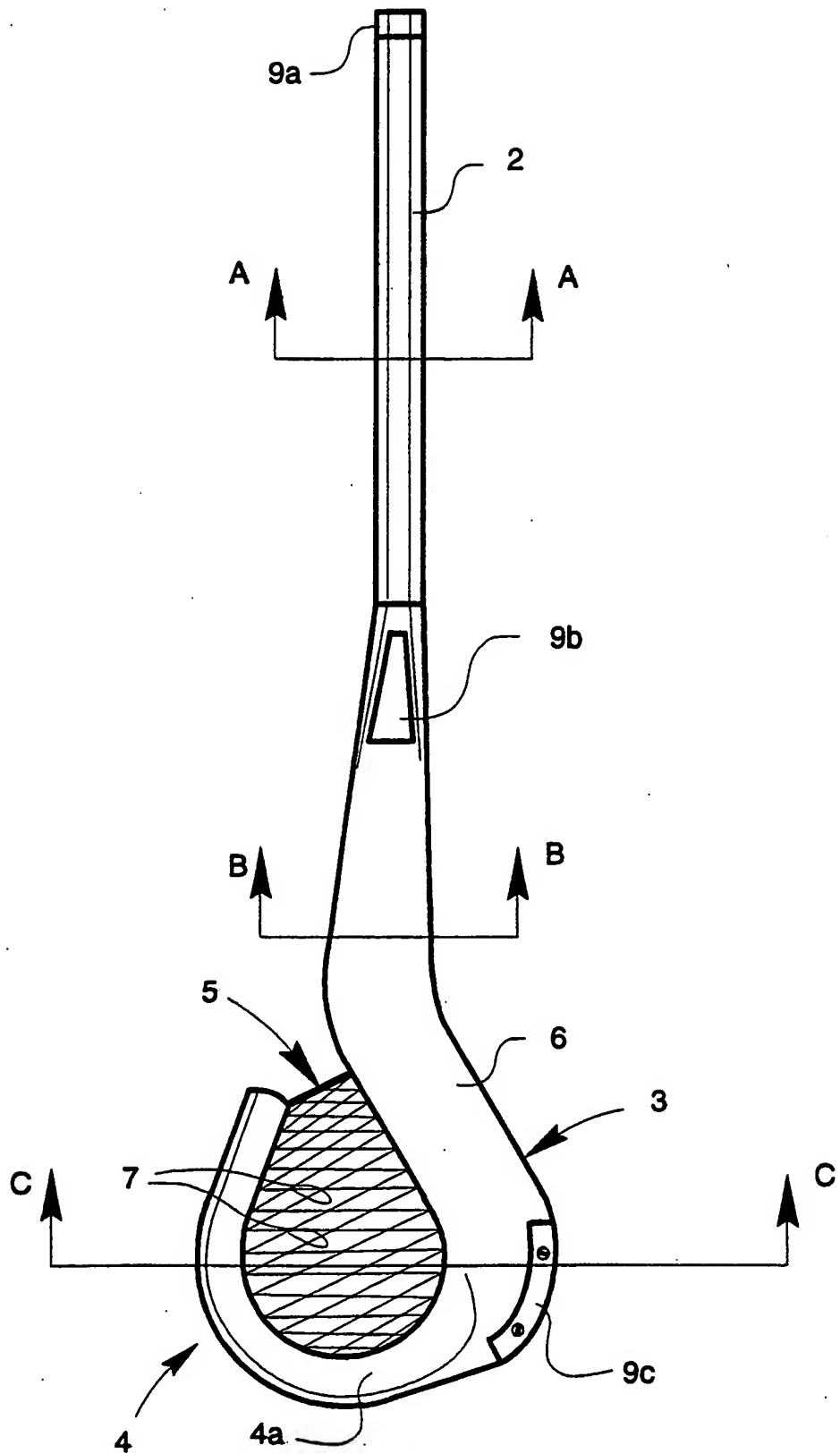
4. A stick as claimed in claim 2, characterized by that the stick further includes a plurality of weighting elements, whereby, when a ball is disposed within said pocket, said stick is caused to balance with said plane of symmetry arranged substantially horizontally, and when said pocket is empty, said stick is caused to balance with said plane of symmetry arranged substantially vertically.

5. A stick as claimed in claim 1, characterized by that the stick further includes a plurality of weighting elements adapted to be interchangeably affixed to one or more attachment means on said stick, whereby a weight and balance of the stick can be selectively adjusted by a player.

6. A stick as claimed in any one of claims 1, 2, or 3, characterized by that said curve portion extending from said strike-zone portion curves towards said handle portion and connects with said strike-zone portion.

7. A stick as claimed in any one of claims 1 to 6, characterized by that said stick being adapted for use in playing the game of i-LINE.

FIGURE 1



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FIGURE 2

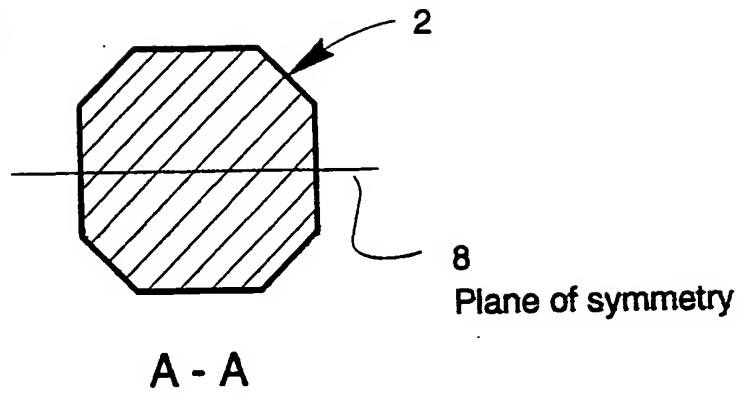


FIGURE 3

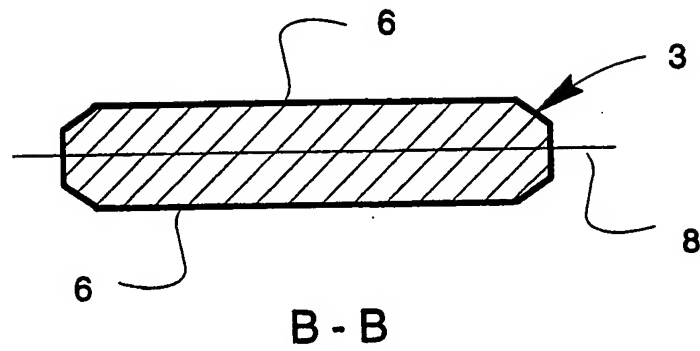
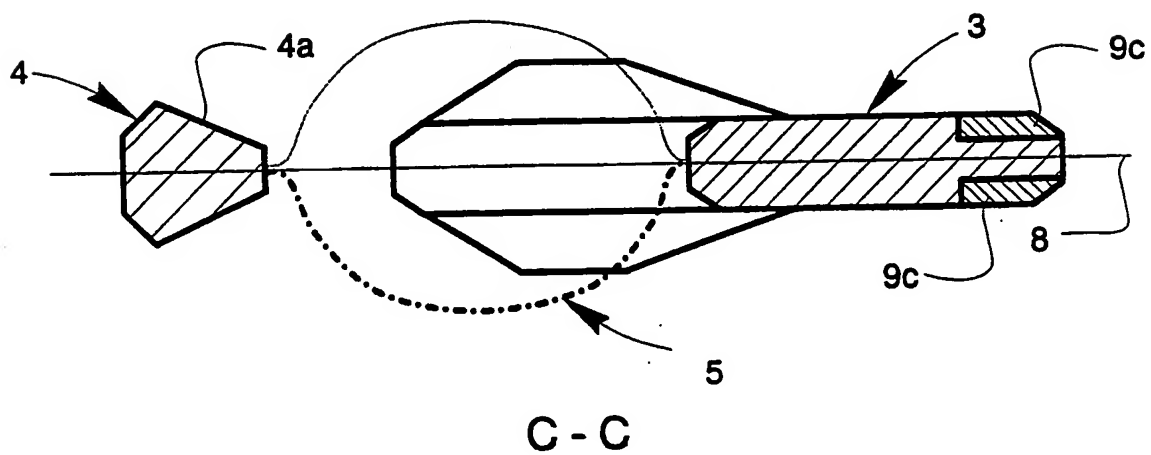


FIGURE 4



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FIGURE 5a

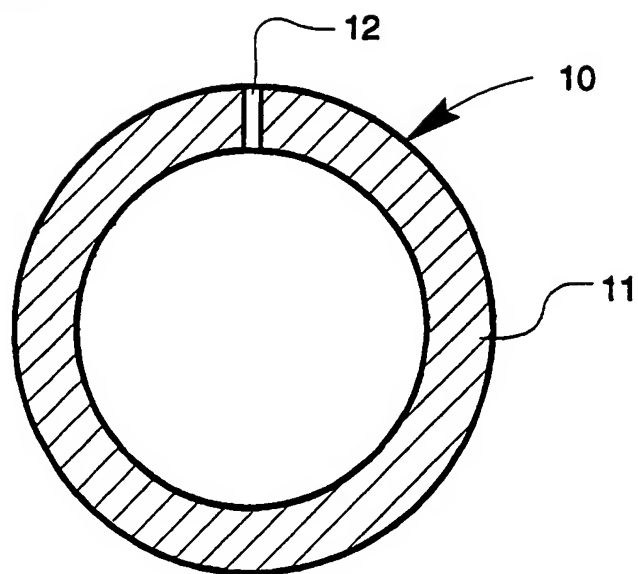


FIGURE 5b

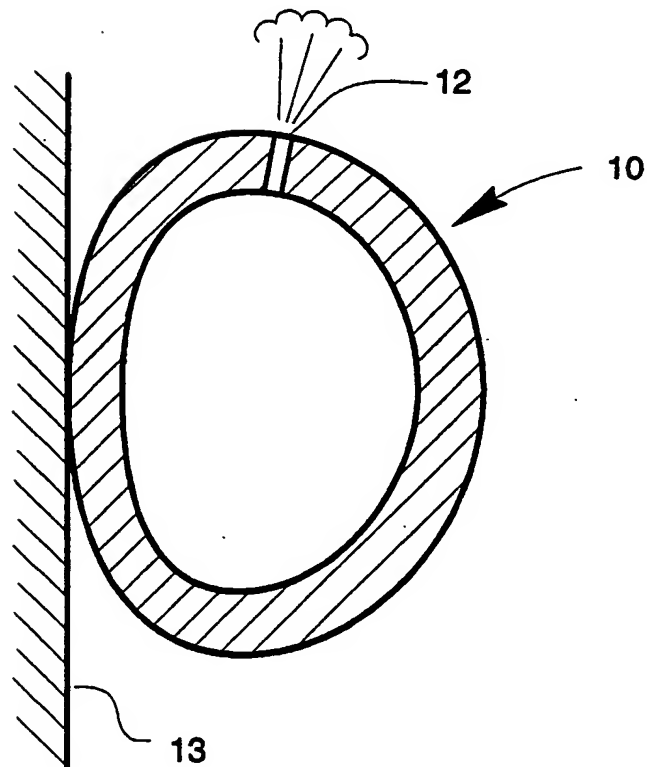
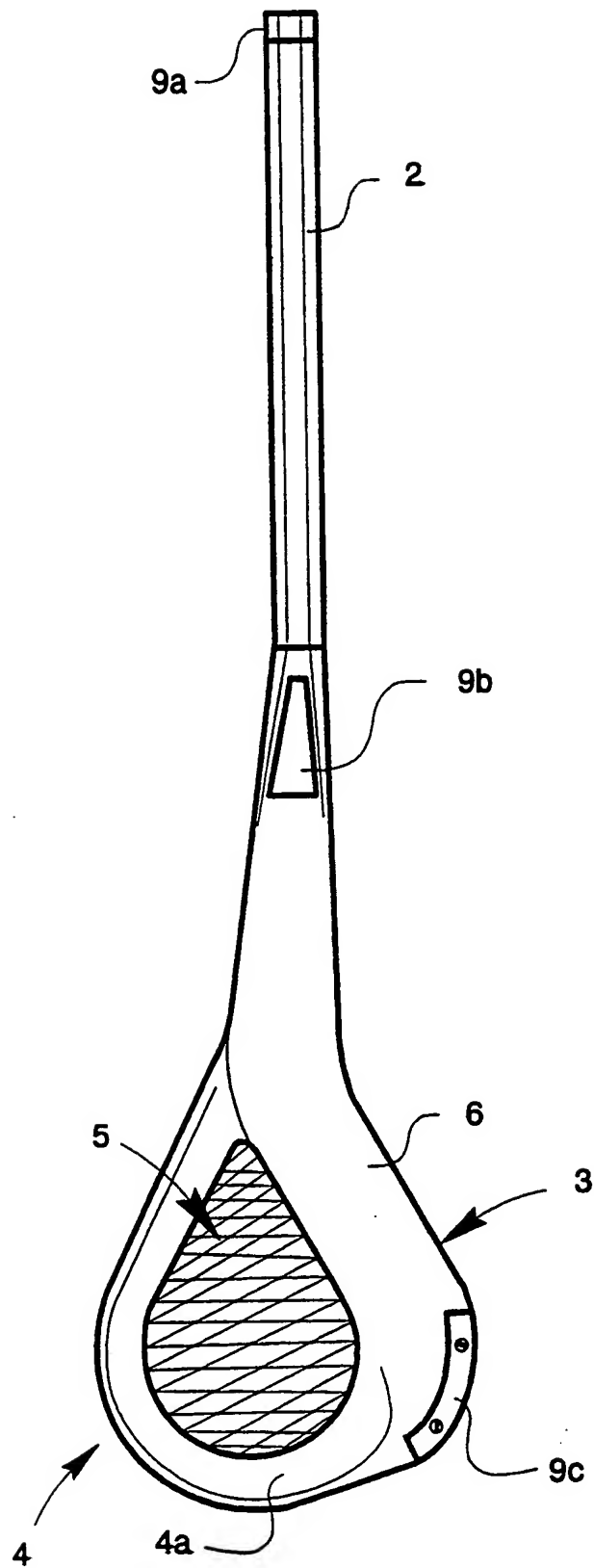


FIGURE 6





A. CLASSIFICATION OF SUBJECT MATTER  
IPC 5 A63B59/14 A63B59/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 5 A63B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US,A,3 809 401 (HANKLE) 7 May 1974 see the whole document ---	1-3,7
X	US,A,2 072 682 (MORGAN) 2 March 1937 see column 1, line 45-50; figure 1 ---	1-3
A	US,A,1 453 503 (HOLMES) 1 May 1923 see column 1, line 40-54; figures ---	4,5
A	GB,A,M23325 (BROOMFIELD) 21 August 1913 &GB-A-23325 A.D. 1912 see figures ---	1
A	US,A,5 018 746 (CARDOZA, JR. ET AL.) 28 May 1991 see abstract; figures 1-4 -----	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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2 June 1994

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-3809401	07-05-74	NONE	
US-A-2072682		NONE	
US-A-1453503		NONE	
GB-A-M23325		NONE	
US-A-5018746	28-05-91	NONE	